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"BUT YOU WILL LIKE OUR FROZEN FRUITS:"

A radio talk prepared by H. C. Diehl, Senior Physiologist, in charge, Frozen Pack Laboratory of the Bureau of Plant Industry, United States Department of Agriculture, and delivered by John L. Harvey during the Western Farm and Home Hour Thursday, February 11, 1932, through Station KGO and eight other stations associated with the NBC-KGO network, Pacific Division, National Broadcasting Company.

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I think that we are reasonably safe in prophesying that the words "But you will like our frozen fruits," will be heard quite frequently over the telephone between grocer and housekeeper within the next decade.

Low temperatures and ice are nature's oldest preservatives, as shown by the finding of well preserved specimens of prehistoric animals in the northern ice. It is a strange fact that the commercial application of this principle did not begin until comparatively recent times and the freezing preservation of horticultural products is still an infant industry. In fact, the retail distribution of these products began only within the last five years.

As this talk is to be one of a series of three, I will confine it to a brief considerabtion of the general aspects of freezing preservation. The two subsequent talks will take up frozen fruits and frozen vegetables specifically.

Suppose then that we develop brief answers to questions which you may be asking concerning frozen-pack fruits and vegetables. What does freezing preservation seek to accomplish? How is it to justify its objective, and what may we expect of it in the future?

Now, economic justification may require that a commercial application of freezing shall result in high quality or increased usefulness of the product, or its delivery to the consumer in a cheaper and better way.

For the present in our Frozen Pack Laboratory at Seattle, we have confined most of our efforts to a consideration of the factors affecting quality. A wide range of horticultural products, totaling nearly 30,000 small containers has been prepared in recent years and examined for the purpose of determining the possibilities and limitations of frozen pack, and in addition to ascertain any changes which freezing preservation may make in the product itself.

As a result of these tests, I am led to believe that many of these raw products can be commercially preserved by cold, especially as our technique improves, and that the results will be as satisfactory as when other methods of preservation are employed. I am of the opinion that in the case of some products such as strawberries and Italian prunes, that the original quality of the raw materials may be better retained by the frozen pack than by any other method now in use.

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As a matter of fact, it has been our objective in freezing preservation research to maintain the natural attractiveness of the product by avoiding as much as possible the undesirable effects of extensive ice formation. Of course, there are other significant changes to take place in the living material of the plant tissues during exposure to freezing temperatures.

Now, while ice formation is undoubtedly the keystone of freezing preservation, especially as regards spoilage by micro-organisms, I'd like to suggest that quality of frozen pack may be approached by other paths, such, for instance, as the selection of varieties which will undergo freezing preservation with slight, or, no change in their natural characteristics, or, by the development of frozen pack technique. This may involve the preparation of sirups or brines, and may make possible the use of moderate freezing, requiring relatively low outlays for their commercial application.

Quite frankly, it is my opinion that the limitations to a completely successful application of freezing preservation to horticultural products at present are no different from those of any new undertaking. Lack of adequate technical knowledge, and absence of experience in the significant branches of frozen food preparation, preservation, and distribution are handicaps. Perhaps, I should say a word about that last phase, distribution, because it is now without guideposts pointing a conservative road to success. It involves a whole new system of handling and utilization for both the distributor and the consumer, mainly as a result of the perishable nature of the product at ordinary atmospheric temperatures.

I mention these factors because some of you may have had both satisfactory and unsatisfactory results from the use of products preserved by the frozen-pack process. With the great development of cold storage preservation that has taken place during the past decade as an example, it is safe to predict that with the advent of quick freezing methods, great progress in the frozen-pack industry will follow.

The present limitations of fresh food preservation by quick freezing will undoubtedly become one of the outstanding achievements of the future. Such technical aspects of frozen fruit and vegetable preparation as the control of oxidation in the product, and the retention of its practically unimpaired natural color, flavor and texture, as well as the future development in satisfactory home utilization of these products are factors which are not unsurmountably difficult.

In some cases we have now available, and we may further anticipate, delicious frozen fruits and vegetables in many forms, entirely safe for human consumption and allowing the consumer the enjoyment of these products, regardless of season, and with many of the natural attributes of quality practically unchanged by the method of preservation.